

## ABSTRACT

A process for carrying out secondary reforming reactions for the production of synthesis gas wherein a gas flow comprising oxygen and a gas flow comprising hydrocarbons are  
5 fed into a combustion chamber and are reacted upon mixing, thus obtaining a gas flow comprising hydrogen and carbon monoxide fed in turn to a catalytic bed for carrying out a steam reforming reaction, is distinguished in that it comprises the steps of: - feeding the gas flow comprising  
10 oxygen in the combustion chamber in the form of a plurality of jets not laid the one upon the other with respect to the direction of the flow comprising hydrocarbons and generated by corresponding parallel streamtubes having equal velocity; - splitting the plurality of jets within the gas flow  
15 comprising hydrocarbons in the combustion chamber so as to mix the gas flow comprising oxygen with amounts of gas flow comprising hydrocarbons at local constant ratio.